

## CLAIMS

## WE CLAIM AS OUR INVENTION:

1. A wayside rail lubrication apparatus comprising:

a sensor associated with a first position on a rail for producing a lubrication  
5 signal when a locomotive pulling a plurality of load cars passes the first position; and  
a lubricant dispensing apparatus for applying a lubricant to the rail at a second  
position on the rail in response to the lubrication signal, the lubricant adapted to  
reduce the friction between wheels of the load cars and the rail, the first position and  
the second position being separated by a distance on the rail sufficient to prevent the  
10 lubricant from contacting drive wheels of the locomotive.

2. The wayside rail lubrication apparatus of claim 1, the lubricant  
dispensing apparatus further comprising:

a lubricant container for storing a volume of lubricant;  
15 a pump for delivering lubricant from the lubricant container to the rail; and  
a refilling device for adding lubricant to the lubricant container at no more  
than a predetermined rate.

3. The wayside rail lubrication apparatus of claim 1, further comprising a  
20 bypass device for selectively preventing the lubricant dispensing apparatus from  
applying the lubricant in response to the lubrication signal.

4. The wayside rail lubrication apparatus of claim 1, further comprising a  
means for terminating the application of the lubricant to the rail by the lubricant  
25 dispensing apparatus before a number of the load cars at a rear of the train pass the  
second position.

5. A wayside rail lubrication apparatus comprising:

a detection apparatus for providing a lubrication signal in response to the presence of a vehicle on a rail;  
a lubricant dispensing apparatus for applying a lubricant to the rail in response to the  
5 lubrication signal; and  
a bypass device for selectively preventing the lubricant dispensing apparatus from applying the lubricant in response to the lubrication signal.

6. The wayside rail lubrication apparatus of claim 5, wherein the bypass  
10 device comprises a device located in the vehicle for controlling the bypass device from the vehicle.

7. The wayside rail lubrication apparatus of claim 5, wherein the bypass  
device comprises a remote signal reception device for receiving a signal from a  
15 remote location for controlling the bypass device.

8. The wayside rail lubrication apparatus of claim 5, wherein the bypass  
device comprises an environmental sensor for preventing the lubricant dispensing  
apparatus from applying the lubricant in response to a predetermined environmental  
20 condition.

9. A wayside rail lubrication apparatus comprising:  
a lubricant dispensing apparatus for applying lubricant to a rail; and  
a means for controlling an amount of lubricant applied by the lubricant  
25 dispensing apparatus over a predetermined time period.

10. The wayside rail lubrication apparatus of claim 9, wherein the means  
for controlling further comprises:

a timer for providing a time signal; and  
30 a controller for controlling the operation of the lubricant dispensing apparatus in response to the time signal.

11. The wayside rail lubrication apparatus of claim 9, further comprising:  
a lubricant container;

a pump for delivering lubricant from the lubricant container to the rail; and

a device for refilling the lubricant container with lubricant at no more than a

5 predetermined rate.

12. A wayside rail lubrication apparatus comprising:

a means for applying lubricant to a rail in response to the presence of a vehicle  
wheel at a location on the rail; and

10 a means for delay associated with the means for applying lubricant for  
delaying the application of lubricant for a time period after the vehicle wheel is  
present at the location on the rail.

13. The wayside rail lubrication apparatus of claim 12, wherein the means

15 for delay comprises an empty volume downstream of a lubricant pump.

14. A wayside rail lubrication apparatus comprising:

a sensor for producing a lubrication signal responsive to the presence of a train  
on a rail, the train comprising a locomotive pulling a plurality of load cars; and

20 a means for applying a lubricant to a section of the rail in response to the  
lubrication signal only after the locomotive has passed the section of rail.

15. The wayside rail lubrication apparatus of claim 14, wherein the means  
for applying further comprises a timer for delaying a start of application of the

25 lubricant to the section of rail for a predetermined time period after generation of the  
lubrication signal.

16. The wayside rail lubrication apparatus of claim 14, further comprising:

a means for detecting an end of the train; and

30 a means for terminating the application of lubricant to the section of rail before the  
end of the train passes the section of rail.

17. A method of applying lubricant to a rail, the method comprising:  
applying a first quantity of lubricant to a rail at a first time in response to the  
presence of a first rail vehicle;

sensing the presence of a second rail vehicle at a second time; and

5 applying a second quantity of lubricant to the rail at a second time in response  
to the presence of a second rail vehicle, the second quantity of lubricant being  
responsive to the time span between the first time and the second time.

18. The method of claim 17, further comprising applying a zero quantity of  
10 lubricant for the second quantity if the time span has not exceeded a predetermined  
minimum.

19. A method of applying lubricant to a rail, the method comprising:

sensing the presence of a train on a rail;

15 applying a lubricant to a section of the rail in response to the presence of the  
train after a locomotive at a head of the train has passed the section of rail; and

terminating the application of lubricant to the section of rail before an end of  
the train passes the section of rail so that the quantity of lubricant on the section of rail  
is reduced by wheels of a plurality of cars proximate the end of the train.

20. The method of claim 19, further comprising:

detecting the end of the train proximate a position of the rail a predetermined  
distance from a position of a lubricant applicator; and

25 terminating application of the lubricant by the lubricant applicator in response  
to the detection of the end of the train.